

Combined Declaration and Power of Attorney for Patent Application

Docket Number: 15-4-825.00

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is claimed and for which a patent is sought on the invention entitled Reflection Space Image Based Rendering, the specification of which is attached hereto unless the following box is checked:

- ☒ was filed on August 6, 1999;
as United States Application Number 09/369,359; and
was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information that is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT international application, which designated at least one country other than the United States listed below, and have also identified below any foreign application for patent or inventor's certificate, or PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Claimed

_____ (Application No.)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Application No.)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

_____ (Application No.)	_____ (Filing Date)
_____ (Application No.)	_____ (Filing Date)

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or under § 365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information that is material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior application and the national or PCT international filing date of this application.

_____ (Application No.)	_____ (Filing Date)	_____ (Status - patented, pending, abandoned)
_____ (Application No.)	_____ (Filing Date)	_____ (Status - patented, pending, abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Douglas J. Crisman, Reg. No. 39,951; John Brigden, Esq., Reg. No. 40,530;

Robert G. Sterne, Esq., Reg. No. 28,912; Edward J. Kessler, Esq., Reg. No. 25,688; Jorge A. Goldstein, Esq., Reg. No. 29,021; Samuel L. Fox, Esq., Reg. No. 30,353; David K.S. Cornwell, Esq., Reg. No. 31,944; Robert W. Esmond, Esq., Reg. No. 32,893; Tracy-Gene G. Durkin, Esq., Reg. No. 32,831; Michele A. Cimbala, Esq., Reg. No. 33,851; Michael B. Ray, Esq., Reg. No. 33,997; Robert E. Sokohl, Esq., Reg. No. 36,013; Eric K. Steffe, Esq., Reg. No. 36,688; Michael Q. Lee, Esq., Reg. No. 35,239; and Steven R. Ludwig, Reg. No. 36,203.

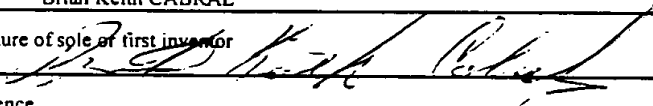

Send Correspondence to:

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 New York Avenue, N.W.
Suite 600
Washington, D.C. 20005-3934

Direct Telephone Calls to:

(202) 371-2600

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor Brian Keith CABRAL	
Signature of sole or first inventor 	Date 10-25-99
Residence 3835 Chamartin Drive, San Jose, California 95118	
Citizenship U.S.A.	
Post Office Address Same As Above.	
Full name of second inventor Marc OLANO	
Signature of second inventor 	Date 22 October 1999
Residence 2031 Turk Blvd., San Fransico, CA 94115	
Citizenship U.S.A.	
Post Office Address Same As Above.	

Full name of third inventor Philip NEMEC	
Signature of third inventor	Date
Residence	
Citizenship	
Post Office Address	

PAUSERS/HALL/1532288-0 Declaration
1/11/11 PTO
ALOP Rev. 1/1/11

(Supply similar information and signature for subsequent joint inventors, if any)

FILE COPY

Combined Declaration and Power of Attorney for Patent Application

Docket Number: 15-4-825.00

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is claimed and for which a patent is sought on the invention entitled **Reflection Space Image Based Rendering**, the specification of which is attached hereto unless the following box is checked:

- ☒ was filed on August 6, 1999;
as United States Application Number 09/369,359; and
was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information that is material to patentability as defined in 37 C.F.R. § 1.56.

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Prior Foreign Application(s)			Priority Claimed
_____	_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
(Application No.)	(Country)	(Day/Month/Year Filed)	
_____	_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
(Application No.)	(Country)	(Day/Month/Year Filed)	

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_____	_____
(Application No.)	(Filing Date)
_____	_____
(Application No.)	(Filing Date)

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or under § 365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information that is material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior application and the national or PCT international filing date of this application.

_____	_____	_____
(Application No.)	(Filing Date)	(Status - patented, pending, abandoned)
_____	_____	_____
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I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Douglas J. Crisman, Reg. No. 39,951; John Brigden, Esq., Reg. No. 40,530;

Robert G. Sterne, Esq., Reg. No. 28,912; Edward J. Kessler, Esq., Reg. No. 25,688; Jorge A. Goldstein, Esq., Reg. No. 29,021; Samuel L. Fox, Esq., Reg. No. 30,353; David K.S. Cornwell, Esq., Reg. No. 31,944; Robert W. Esmond, Esq., Reg. No. 32,893; Tracy-Gene G. Durkin, Esq., Reg. No. 32,831; Michele A. Cimbala, Esq., Reg. No. 33,851; Michael B. Ray, Esq., Reg. No. 33,997; Robert E. Sokohl, Esq., Reg. No. 36,013; Eric K. Steffe, Esq., Reg. No. 36,688; Michael Q. Lee, Esq., Reg. No. 35,239; and Steven R. Ludwig, Reg. No. 36,203.

Send Correspondence to:

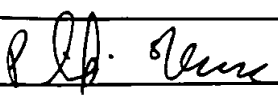
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 New York Avenue, N.W.
Suite 600
Washington, D.C. 20005-3934

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Full name of sole or first inventor Brian Keith CABRAL	
Signature of sole or first inventor	Date
Residence 3835 Chamartin Drive, San Jose, California 95118	
Citizenship U.S.A.	
Post Office Address Same As Above.	
Full name of second inventor Marc OLANO	
Signature of second inventor	Date
Residence 2031 Turk Blvd., San Fransico, CA 94115	
Citizenship U.S.A.	
Post Office Address Same As Above.	

Full name of third inventor Philip NEMEC	
Signature of third inventor 	Date 12/17/1999
Residence 500 W. Middlefield Road #117, Mountain View, CA 94043-3427	
Citizenship U.S.A.	
Post Office Address Same as above.	

PAUSER/ITALIANI (522684) Declaration
10/1/99
10/1/99

(Supply similar information and signature for subsequent joint inventors, if any)

DOCKET NO.: MSFT-1083/191773.1

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Cabral, *et al.*

Serial No.: 09/369,359

Filed: August 6, 1999

For: REFLECTION SPACE IMAGE BASED RENDERING

Confirmation No.: 6692

Group Art Unit: 2672

Examiner: Daniel J. Chung

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

ASSOCIATE POWER OF ATTORNEY

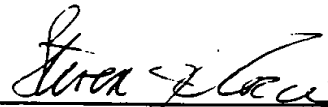
The undersigned, of the firm WOODCOCK WASHBURN LLP, One Liberty Place - 46th Floor, Philadelphia, Pennsylvania 19103, Attorney(s) and/or Agents for Applicant(s), hereby appoints the following:

Richard E. Kurtz	Registration No. 19,263	Jonathan M. Waldman	Registration No. 40,861
Dale M. Heist	Registration No. 28,425	Chad Ziegler	Registration No. 44,273
John W. Caldwell	Registration No. 28,937	David N. Farsiou	Registration No. 44,104
Gary H. Levin	Registration No. 28,734	Steven H. Meyer	Registration No. 37,189
Dianne B. Elderkin	Registration No. 28,598	Paul B. Milcetic	Registration No. 46,261
John P. Donohue, Jr.	Registration No. 29,916	Joseph R. Condo	Registration No. 42,431
Henrik D. Parker	Registration No. 31,863	Michael K. Jones	Registration No. 41,100
Suzanne E. Miller	Registration No. 32,279	Frank T. Carroll	Registration No. 42,392
Lynn B. Morreale	Registration No. 32,842	Thomas E. Watson	Registration No. 43,243
Joseph Lucci	Registration No. 33,307	Peter M. Ullman	Registration No. 43,963
Michael P. Dunnam	Registration No. 32,611	Richard B. LeBlanc	Registration No. 39,495
Michael D. Stein	Registration No. 34,734	Joseph D. Rossi	Registration No. 47,038
Albert J. Marcellino	Registration No. 34,664	George J. Awad	Registration No. 46,528
David R. Bailey	Registration No. 35,057	Steven D. Maslowski	Registration No. 46,905
Barbara L. Mullin	Registration No. 38,250	S. Maurice Valla	Registration No. 43,966
Kevin M. Flannery	Registration No. 35,871	Emma R. Dailey	Registration No. 48,491
David A. Cherry	Registration No. 35,099	Vincent J. Roccia	Registration No. 43,887
Lynn A. Malinoski	Registration No. 38,788	Stephen C. Timmins	Registration No. 48,481
Steven B. Samuels	Registration No. 37,711	Richard D. Watkins	Registration No. 50,993
Janet E. Reed	Registration No. 36,252	Erich M. Falke	Registration No. 49,049
Jeffrey J. King	Registration No. 38,515	Jane E. Inglese	Registration No. 48,444
Alfred W. Zaher	Registration No. 42,248	Susan C. Murphy	Registration No. 46,221
Robert B. Washburn	Registration No. 16,574	Raymond N. Scott, Jr.	Registration No. 48,666
Norman L. Norris	Registration No. 24,196	David L. Marcus	Registration No. 46,897
Michael J. Swope	Registration No. 38,041	Lawrence A. Aaronson	Registration No. 38,369
Michael J. Bonella	Registration No. 41,628	John A. Harrelson, Jr.	Registration No. 42,637
Harold H. Fullmer	Registration No. 42,560	Joseph Milowic, III	Registration No. 52,034
John E. McGlynn	Registration No. 42,863	Kenneth R. Eiferman	Registration No. 51,647

Karen M. Whitney	Registration No. P52,355	Bruce D. George	Registration No. 43,631
Amy Carr-Trexler	Registration No. 51,531	Tara L. Rachinsky	Registration No. 47,875
Daniel D. Biesterveld	Registration No. 45,898	Jerome G. Schaefer	Registration No. 50,800
Sharon Fenick	Registration No. 45,269	Joseph F. Oriti	Registration No. 47,835
Phillip A. Singer	Registration No. 40,176	Richard W. Knight	Registration No. 42,751
Wendy A. Choi	Registration No. 36,697	Scott E. Scioli	Registration No. 47,930
Felicity E. Groth	Registration No. 47,042	Andrew J. Hagerty	Registration No. 44,141
Jeffrey H. Rosedale	Registration No. 46,018	Walter C. Frank	Registration No. 52,911
Andrew T. Serafini	Registration No. 41,303		

his/her associates with full power to prosecute the above-identified application and to transact all business in the Patent Office connected therewith and requests that correspondence continue to be directed to the firm of WOODCOCK WASHBURN LLP at the above address.

Date: *March 20, 2003*



Steven J. Rocci
Registration No. 30,489

Woodcock Washburn LLP
One Liberty Place - 46th Floor
Philadelphia PA 19103
Telephone: (215) 568-3100
Facsimile: (215) 568-3439

DOCKET NO.: MSFT-1083/191773.1

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Cabral et al

Confirmation No. 6692

Serial No.: 09/369,359

Group Art Unit: 2672

Filing Date: August 6, 1999 Examiner: Daniel J. Chung

For: Reflection Space Image Based Rendering

BOX DSD

Commissioner of Patents & Trademarks

Washington, DC 20231

Sir:

**POWER OF ATTORNEY WITH REVOCATION
AND STATEMENT UNDER 37 CFR 3.73(b)**

Revoking any and all powers of attorney heretofore given in the matter of the above-entitled application, the undersigned, assignees of the entire interest in the above-identified application, hereby appoints **STEVEN J. ROCCI**, Registration No. **30,489**, of the firm of **WOODCOCK WASHBURN LLP**, One Liberty Place - 46th Floor, Philadelphia, Pennsylvania, 19103, as attorney(s) for applicant, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith. The authority granted herein shall remain in effect unless otherwise revoked in writing by the undersigned or otherwise terminated.

In addition, the assignee also appoints the following attorneys listed below of **MICROSOFT CORPORATION**, One Microsoft Way, Redmond, Washington 98052 with full power of substitution and revocation, to prosecute this application, to make alterations and

DOCKET NO.: MSFT-1083/191773.1

PATENT

amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith.

Katie E. Sako

Registration No. 32,628

Daniel D. Crouse

Registration No. 32,022

Send all future correspondence and address all telephone calls to:

**STEVEN J. ROCCI
WOODCOCK WASHBURN LLP
One Liberty Place - 46th Floor
Philadelphia, PA 19103
(215) 568-3100**

STATEMENT UNDER 37 C.F.R. 3.73(b)

MICROSOFT CORPORATION, a corporation of the **State of Washington**, states that it is the assignee of the entire right, title, and interest in the patent application/patent identified above by virtue of:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above.

☐ 1. The assignment was recorded in the Patent and Trademark Office at Reel _____, Frames _____.

☐ 2. The assignment has not yet been recorded. A copy of the assignment is attached.

DOCKET NO.: MSFT-1083/191773.1

PATENT

OR

B. A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

From the inventors to: Silicon Graphics, Inc. These assignments have not yet been recorded. A copy of each is attached.

From: Silicon Graphics, Incorporated To: Microsoft Corporation, dated September 28, 2001. This assignment has not yet been recorded. A copy thereof is attached.

Copies of assignments or other documents in the chain of title are attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignees identified above. The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee, **MICROSOFT CORPORATION**.

Date: 6/17/2002



Name: DANIEL D. CROUSE
Title: Assistant Secretary
Corporation: MICROSOFT CORPORATION

EXHIBIT A

ASSIGNMENT

WHEREAS, SILICON GRAPHICS, INC., a Delaware Corporation, (hereinafter referred to as "Assignor") owns all right, title and interest in and to the inventions, patents and patent applications (hereinafter referred to as the "Intellectual Property") identified in Schedule A attached hereto; and

WHEREAS, MICROSOFT CORPORATION, a Washington Corporation, (hereinafter referred to as "Assignee"), is desirous of acquiring the entire domestic and foreign right, title, and interest in and under the Intellectual Property.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor assigns and transfers to the Assignee and the Assignee's legal representatives, successors and assigns, pursuant to the terms of a concurrently executed Confidential Patent Assignment Agreement, its full and exclusive rights in and to the Intellectual Property in the U.S. and every foreign country and its entire right, title, and interest in and to the Intellectual Property and related applications (e.g., provisional applications, non-provisional applications, continuations, continuations-in-part, divisionals, reissues, reexaminations, National phase applications, including petty patent applications, and utility model applications) that may be filed in the United States and every foreign country on the Intellectual Property, and extensions or derivations thereof, both foreign and domestic, that may issue thereon, and we do hereby authorize and request the Commissioner of Patents to issue U.S. patents to the above-mentioned Assignee agreeably with the terms of this assignment document.

ASSIGNOR HEREBY AUTHORIZES the Assignee to insert in Schedule A to this assignment document the filing date and application number of any application if the date and number are unavailable at the time this document is executed.

UPON SAID CONSIDERATION, Assignor conveys to the Assignee the right to make application in its own behalf for protection of the Intellectual Property in the U.S. and countries foreign to the U.S. and to claim under the Patent Cooperation Treaty, the International Convention and/or other international arrangement for any such application the date of any earlier U.S. application (or any other application on the invention) to gain priority with respect to other applications.

IN WITNESS WHEREOF, Assignor has caused one of its officers to hereunder set his hand on the date shown below.

Date 9/28/01

Sandra Escher

Senior Vice President
Title

STATE OF Washington)
COUNTY OF King) SS:

On this 28th day of September, 2001, before me, a Notary Public in and for said county, appeared _____, who is personally known to me to be the same person whose name is subscribed to the foregoing assignment document, and acknowledged that he/she signed and delivered the document as his/her free and voluntary act for the uses and purposes therein set forth.

{SEAL}



Melissa Mael
Notary Public

My Commission Expires: 10-9-01

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
Digital Media	US	5,506,624	Rotating Sample of Video Images	4/9/1996
	US	5,745,713	Movie-Based Facility for Launching Application Programs or Services	4/28/1998
	US	5,774,666	System and Method for Displaying Uniform Network Resource Locators Embedded in Time-Based Medium	6/30/1998
	US	5,987,509	System and Method for Displaying an Active URL During Playback of a Media File or Media Broadcast	11/16/1999
	US	5,808,682	Synchronized, Interactive Playback of Digital Movies Across a Network	9/14/1998
	US	5,943,347	Apparatus and Method for Error Concealment in an Audio Stream	8/24/1999
	US	6,005,600	High Performance Player for Distributed, Time-Based Media	12/21/1999
	US	6,147,695	System and Method for Combining Multiple Video Streams	11/14/2000
	US	6,075,906	System and Method for the Scaling of Image Streams that Use Motion Vectors	6/13/2000
	US	0365,585	Video Camera Used with Personal Computer	12/28/1995
	US	5,604,866	Flow Control System Having a Counter in Transmitter for Decrementing and Incrementing Based Upon Transmitting and Received Message Size Respectively for Indicating Free Space in Receiver	2/18/1997
	US	5,311,329	Digital Filtering for Lenticular Printing	5/10/1994
	US	5,438,429	Digital Filtering for Lenticular Printing	8/1/1996
	US	6,070,002	System Software for Use in a Graphics Computer System Having a Shared System Memory	3/30/2000
Internet	US	5,649,186	System and Method for a Computer-Based Dynamic Information Clipping Service	
	US	5,737,560	Graphical Method and System for Accessing Information on a Communications Network	4/7/1998
	US	5,877,767	Graphical Method and System for Accessing Information on a Communications Network	3/2/1999
	US	5,742,768	System and Method for Providing and Displaying a Web Page Having an Embedded Menu	
	US	5,890,170	Method and Apparatus for Publishing Documents in a Hypertextual Network Environment	3/30/1999
	US	6,026,433	Method of Creating and Editing a Web Site in a Client-Server Environment Using Customizable Web Site Templates	2/15/2000
	US	6,072,491	Method and Computer Program Product for Accessing a Web Site	6/6/2000
	US	6,096,096	Web-Site Delivery	8/1/2000
	US	6,096,092	Server to Dynamically Generate Graphics for the World Wide Web	8/1/2000
	US	6,189,029	Web Survey Tool Builder and Result Compiler	2/13/2001
	US	6,061,829	General Purpose Web Annotations Without Modifying Browser	6/27/2000
	US	6,199,096	Method and Apparatus for Providing an Expandable, Hierarchical Index in a Hypertextual, Client-Server Environment	3/6/2001
	US	6,012,055	Mechanism for Integrated Information Search and Retrieval from Diverse Sources Using Multiple Navigation Methods	1/4/2000
	US	4,772,661	Pixel Mapping Apparatus for Color Graphics Display	9/20/1988
Graphics Rendering	US	5,038,297	Method and Apparatus for Clearing a Region of Z-Buffer	8/6/1991
	US	5,197,126	Clock Switching Circuit for Asynchronous Clocks of Graphics Generation Apparatus	3/23/1993

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
	US	4,771,279	Dual Clock Shift Register	9/13/1988
	US	4,951,232	Method for Updating Pipelined Single Port Z-Buffer by Segments on a Scan Line	8/21/1990
	US	4,789,927	Interleaved Pipeline Parallel Processing Architecture	12/8/1988
	US	5,113,490	Method for Forming a Computer Model from an Intersection of a Cutting Surface with a Bounded Volume	5/12/1992
	US	5,182,548	Method and Apparatus for Painting on a Computer	1/28/1993
	US	4,991,110	Graphics Processor with Staggered Memory Timing	2/5/1991
	US	5,129,059	Graphics Processor with Staggered Memory Timing	7/7/1992
	US	5,193,145	Method and Apparatus for Producing a Visually Improved Image in a Computer System	3/9/1993
	US	5,847,700	Integrated Apparatus for Displaying a Plurality of Modes of Color Information on a Computer Output Display	12/8/1998
	US	5,371,518	Video Timing and Display ID Generator	12/8/1994
	US	5,621,432	Method and Apparatus for Generating Display Identification Information	4/15/1997
	US	5,051,737	Efficient Graphics Process for Clipping Polygons	9/24/1991
	US	5,266,941	Apparatus and Method for Controlling Storage of Display Information in a Computer System	11/30/1993
	US	5,394,170	Apparatus and Method for Controlling Storage of Display Information in a Computer System	2/28/1995
	US	5,768,552	Graphical Representation of Computer Network Topology and Activity	6/18/1998
	US	5,585,824	Graphics Memory Apparatus and Method	12/17/1998
	US	5,818,433	Graphics Memory Apparatus and Method	10/6/1998
	US	5,307,450	Z-Subdivision for Improved Texture Mapping	4/28/1994
	US	5,230,039	Texture Range Controls for Improved Texture Mapping	7/20/1993
	US	5,343,556	Method for Scan Converting Shaded Triangular Polygons	8/30/1994
	US	5,347,818	Method for Display Rendering by Determining the Coverage of Pixels in Polygons	9/13/1994
	US	5,345,252	High Speed Cursor Generation Apparatus	9/8/1994
	US	5,265,199	Method and Apparatus for Accomplishing Z-Buffering by Prediction	11/23/1993
	US	5,548,709	An Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System	8/20/1998
	US	5,706,481	Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System	1/6/1998
	US	5,684,939	Antialiased Imaging with Improved Pixel Supersampling	11/4/1997
	US	6,072,500	Antialiased Imaging with Improved Pixel Supersampling	6/6/2000
	US	5,581,680	Method and Apparatus for Antialiasing Raster Scanned Images	12/3/1998
	US	5,636,338	Method for Designing Curved Shapes for Use by a Computer	8/3/1997
	US	5,515,484	Method and Apparatus for Rendering Volumetric Images	5/7/1998
	US	5,369,739	Apparatus and Method for Generating Point Sample Masks in a Graphics Display System	11/29/1994
	US	5,528,737	Processor-Based Method for Rasterizing Polygons at an Arbitrary Precision	6/18/1998
	US	5,806,782	A Method and Apparatus for Projective Texture Mapping Rendered from Arbitrarily Positioned and Oriented Light Source	9/8/1998
	US	5,682,564	Apparatus and Method for Handling Data Transfer Between a General Purpose Computer and a Cooperating Processor	10/28/1997

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
	US	5,457,779	System for Accessing Graphic Data in a SIMD Processing Environment	10/10/1995
	US	5,671,401	Apparatus for Efficiently Accessing Graphic Data for Rendering on a Display	9/23/1997
	US	5,742,749	A Method and Apparatus for Shadow Generation Through Depth Mapping	4/21/1998
	US	5,490,240	A System and Method of Generating Interactive Computer Graphic Images Incorporating Three Dimensional Textures	2/6/1996
	US	5,438,654	System and Method for Sharpening Texture Imagery in Computer Generated Interactive Graphics	8/1/1996
	US	5,455,627	Programmable Video Output Format Generator	10/3/1995
	US	5,471,572	A System and Method for Adding Detail to Textures Imagery in Computer Generated Interactive Graphics	11/28/1995
	US	5,704,024	A Method & Apparatus for Generating Reflection Vectors Which can be Unnormalized and For Using These Reflection Vectors to Index Locations on an Environment Map	12/30/1997
	US	5,649,082	An Efficient Algorithm for Computer Texture Coordinates for Lines & Polygons	7/15/1997
	US	5,528,738	Method and Apparatus for Antialiasing Raster Scanned, Polygonal Shaped Images	6/18/1998
	US	5,619,597	Method for Sampling a Uniform Spatially-Distributed Sequence of Pixels in a Block	8/8/1997
	US	5,710,876	A Computer Graphics System for Rendering Images Using Full Spectral Illumination Data	1/20/1998
	US	5,835,133	Optical System for Single Camera	11/10/1998
	US	5,608,461	Programmable Video Frame Detector	3/4/1997
	US	5,703,810	Improved DRAM for Texture Mapping	12/30/1997
	US	5,943,058	Texture Mapping Circuit for Performing Data Interpolations	8/24/1999
	US	5,982,939	System and Method for Antialiasing of Texture Edges	11/9/1999
	US	5,844,567	Computer Graphics System and Method for Texture Mapping Using Triangular Interpolation	12/1/1998
	US	5,819,017	Apparatus and Method for Selectively Storing Depth Information of a 3-D Image	10/6/1998
	US	5,877,771	A Method and Apparatus for Supersampling Based on the Local Rate of Change in Texture	3/2/1999
	US	5,760,763	A Method and Apparatus for Providing Texture Using a Selected Portion of a Texture MIP-MAP	6/2/1998
	US	5,818,613	System and Method for Color Space Conversion	10/6/1998
	US	5,736,968	Apparatus and Method for Accelerated Tiled Data Retrieval	4/7/1998
	US	5,657,479	Hierarchical Display List Processing in Graphics Data Retrieval System	8/12/1997
	US	5,936,626	Computer Graphics Silhouette Load Management	8/10/1999
	US	5,845,674	System and Method for Creating Visual Images of Aircraft Wake Vortices	12/8/1998
	US	6,226,003	Method for Rendering Silhouette and True Edges of 3-D Line Drawings with Occlusion	5/1/2001
	US	6,131,189	System and Method to Efficiently Represent Aliases and Indirect Memory Operations in Static Single Assignment Form During Compilation	10/10/2000
	US	5,946,113	System and Method for Color Space Conversion Using an Extended Color Space	8/31/1999
	US	6,147,772	System and Method for Color Space Conversion Using an Extended Color Space	11/14/2000
	US	5,831,620	System and Computer-Based Method for Creating Real-Time Mirror Reflections	11/3/1998

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
	US	5,815,162	Computational Low-Cost Anti-Aliased Bresenham Line Algorithm	3/29/1998
	US	6,249,289	Multi-Purpose High Resolution Distortion Correction	3/19/2001
	US	5,949,424	Method, System and Computer Program Product for Bump Mapping in Tangent Space	9/7/1999
	US	5,880,736	Method, System and Computer Program Product for Shading	3/9/1999
	US	6,163,319	Method, System and Computer Program Product for Shading	12/18/2000
	US	6,104,417	Unified Memory Computer Architecture with Dynamic Graphics Memory Allocation	8/15/2000
	US	6,154,794	Upstream Situated Apparatus and Method within a Computer System for Controlling Data Flow to a Downstream Situated Input/Output Unit	11/28/2000
	US	6,078,331	A Method and System for Efficiently Drawing Subdivision Surfaces for 3D Graphics	6/20/2000
	US	6,078,332	Real-Time Lighting Algorithm Using 3D Texture Mapping	6/20/2000
	US	6,175,367	A Method and System for Real Time Illumination of Computer Generated Images	1/16/2001
	US	6,002,408	System and Method for Storing and Accessing Data Representative of an Object in Various Levels of Detail	12/14/1999
	US	6,154,215	Method and Apparatus for Maintaining Multiple Representations of a Same Scene in Computer Generated Graphics	11/28/2000
	US	6,057,850	Blended Texture Illumination Mapping	5/2/2000
	US	5,907,962	Latching Assembly for a Computer	6/1/1999
	US	6,215,495	A Platform Independent Application Program Interface for Interactive 3D Scene Management	4/10/2001
	US	6,108,007	Method, System and Computer Program Product for Increasing Interpolation Precision Using Multi-Channel Texture Mapping	8/22/2000
	US	6,104,415	Method for Accelerating Minified Textured Cache Access	8/15/2000
	US	6,232,981	Method for Improving Texture Locality for Pixel Quads by Diagonal Level of Detail Calculation	5/15/2001
	US	6,232,979	Method, System and Computer Program Product for Fast Computation Using Parallel Multi-Channel Resampling and Blending	5/15/2001
	US	6,246,415	Method and Apparatus for Culling Polygons	6/12/2001
	US	6,236,413	Method and System for a RISC Graphics Pipeline Optimized for High Clock Speeds by Using Recirculation	5/22/2001
	US	6,075,546	A Packetized Command Interface to a Graphics Processor	6/13/2000
	US	6,230,177	Method and Apparatus for Performing Fast Fourier Transforms	5/8/2001
	US	6,252,610	Method and Apparatus for Efficiently Switching State in a Graphics Pipeline	6/26/2001
	US	6,128,638	Method and Apparatus for Calculating X to the Exponent of Y	10/3/2000
	US	6,133,901	Method and System for Width Independent Antialiasing	10/17/2000
	US	6,091,425	Constant Multisample Image Coverage Mask	7/18/2000
	US	6,205,531	Method and Apparatus for Virtual Address Translation	3/20/2001
	US	6,256,656	Apparatus and Method for Extending Computational Precision of a Computer System Having a Modular Arithmetic Processing Unit	7/3/2001
	US	6,229,547	System and Method for Rendering Multi-Planar Reformations Using Bi-Linear Interpolation	5/8/2001

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	Country	Patent No.	Title	Issue Date
	US	6,268,861	Volumetric Three-Dimensional Fog Rendering Technique	7/31/2001
	US	6,163,320	Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique	12/19/2000

Schedule A - Pending Patent Applications

	Country	Application No.	Title	Filing Date
Tablet Computing	US	196100	"Pen-Based Interface for a Notepad Computer"	11/20/1998
	US	196114	"Pen-Based Computer System"	11/20/1998
Graphics Rendering	US	09/005129	System and Method for the Direct Rendering of Curve Bounded Objects	1/9/1998
	US	191456	Floating Point Gamma Correction Method And System	11/12/1998
	US	09/217398	High Precision Texture Wrapping Method And Device	12/21/1998
	US	265487	Method And Device For Associating A Pixel With One Of A Plurality Of Regions In A Logarithm Or Cosine Space	3/9/1999
	US	072050	Method and System For Providing Texture Using A Selected Portion of a Texture Map	5/5/1998
	US	033663	Improved Chroma-Key Suppression Method and Apparatus	3/3/1998
	US	09/244275	Memory Chip For Use in a Unified Memory Architecture	2/3/1999
	US	244261	Memory Controller for Controlling Memory in a Computer System Having a Unified Memory Architecture	2/3/1999
	US	244254	I/O Chip in a Computer System Having a Unified Memory Architecture	2/3/1999
	US	220078	System and Method for Morphing Based on Multiple Weighted Parameters	12/23/1998
	US	845526	A Method and System for Efficiently Evaluating and Drawing Nurbs Surfaces for 3D Graphics	4/25/1997
	US	899123	System and Method for Displaying Different Portions of an Object in Different LOD Levels	7/23/1997
	US	070808	System and Method for Displaying Different Portions of an Object in Different Levels of Detail	5/1/1998
	US	074027	Occlusion Culling For Complex Transparent Scenes in Computer Generated Graphics	5/6/1998
	US	137005	Method and System for Performing Rasterization in Producing Three-Dimensional Graphics Using YUV Color Space and Combining Same with Digital Video in YUV Color Space	8/20/1998
	US	035376	Subsampled Texture Edge Antialiasing	3/5/1998
	US	956537	Method and Apparatus for Providing Image and Graphics Processing Using a Graphics Rendering Engine	10/23/1997
	US	937793	Method, System and Computer Program Product for Providing Illumination in Computer Graphics Shading and Animation	9/25/1997
	US	09/048099	Method for Efficient Handling of Texture Cache Misses by Recirculation	3/28/1998
	US	09/081073	Method and Apparatus for Line Antialiasing by Gamma-Corrected Area Calculation	5/19/1998
	US	246136	System and Method for Rendering an Image	2/8/1999
	US	09/448907	A Packetized Command Interface to a Graphics Processor	11/23/1999
	US	09/549158	A Packetized Command Interface to a Graphics Processor	4/13/2000
	US	09/145516	Method and Apparatus For Rasterizing in a Hierarchical Tile Order	9/2/1998
	US	978755	Range Correct Layered Fog Model Using 3D Texture	11/26/1997
	US	111284	Backface Primitives Culling	7/6/1998
	US	201814	Multi-Threaded Texture Modulation for Axis Aligned Volume Rendering	12/1/1998
	US	247422	Multisample Dither Method With Exact Reconstruction	2/10/1999

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	Country	Application No.	Title	Filing Date
	US	09/227227	Method and Apparatus For Synchronizing Graphics Pipelines	1/8/1999
	US	218121	Scaleable Network Based Computer Graphics System	12/21/1998
	US	348071	Computer System Having A Distributed Texture Memory Architecture	7/1/1999
	US	09/707418	Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique	11/6/2000
	US	348882	Antialiasing Method Using Barycentric Coordinates Applied to Lines	7/1/1999
	US	08/220598	System and Method For Transitioning Between Two Filters, Allowing For The Use of Higher Order Interpolation	12/28/1998
	US	09/416055	Method, System, and Computer Program Product For Compositing True Colors and Intensity-Mapped Colors Into A Frame Buffer	10/12/1999
	US	218042	System and Method For Locking Disparate Video Formats	12/22/1998
	US	09/247885	Method For Interfacing to Ultra-High Resolution Output Devices	2/10/1999
	US	232860	Method For Tilting Multiple Displays to Generate a Large Area Display of Moving Data	1/15/1999
	US	294546	Combined Floating-Point Logic Core and Frame Buffer	4/19/1999
	US	09/294450	Apparatus and Method for Sharing Antialiasing Memory Across Multiple Displays	4/19/1999
	US	277567	Transformation Pipeline for the Computing Distortion Correction Geometry for any Design Eyepoint, Display Surface Geometry and Projector Position	3/26/1999
	US	385270	Antialiasing Method for Computer Graphics	3/23/1999
	US	09/220158	Processor for Geometry Transformations and Lighting Calculations	12/23/1998
	US	263185	System and Method for Maintaining Time Dependencies in Conversions That Include Parallel Operations	3/5/1999
	US	09/467561	A Method and System for Efficiently Implementing Two Sided Vertex Lighting in Hardware	12/20/1999
	US	275725	Method and Apparatus for Texture Memory Management	3/24/1999
	US	09/247816	Method and Apparatus for Early Culling of Occluded Objects	2/9/1999
	US	346841	Method and System for Generating Light Values for a Set of Vertices	7/1/1999
	US	273247	Method and System for Dynamic Clock Frequency Adjustment for a Graphics Subsystem in a Computer	3/19/1999
	US	306967	Fine Grain Multi-Pass for Multiple Texture Rendering	5/7/1999
	US	344005	Method and System for Dynamic Texture Replication on a Distributed Memory Graphics Architecture	6/24/1999
	US	345366	Cache Memory For High Latency and Out-of-Order Return of Texture Data	7/1/1999
	US	328000	Method for Virtual Clipping A Three-Dimensional Graphics Image	6/8/1999
	US	09/502497	A Method and System For Efficient Simplification of Tetrahedral Meshes Used in 3D Volumetric Representations	2/11/2000

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	Country	Application No.	Title	Filing Date
	US	09/377778	Method, System and Computer Program Product for Multi-Pass Bump-Mapping into an Environment Map	8/20/1999
	US	328164	Method and Apparatus for a Modified Linear Filter Using Texture Data as Phase Angle	6/8/1999
	US	303994	View-Dependent Layer Ordering Method and System	5/3/1999
	US	300916	Method and System for Iterative Morphing	4/28/1999
	US	293869	Apparatus and Method for Increasing the Bandwidth to a Graphics Subsystem	4/19/1999
	US	265493	Device, Method and System for Generating Per-Pixel Light Values Using Texture Parameters	3/9/1999
	US	386379	Method, System, and Computer Program Product for Efficient Buffer Level Management of Memory-Buffered Graphics Data	8/31/1999
	US	386378	Method, System and Computer Program Product for Overlapping Graphics Data Collection and Transmission Using a Single Processor	8/31/1999
	US	220082	Method, System and Computer Program Product for Modified Blending Between Clip-Map Tiles	12/23/1998
	US	09/369359	Reflection Space Image Based Rendering	8/6/1999
	US	09/727985	Texture Generating Apparatus For Dynamic Interference Checking	11/30/2000
	US	09/675979	Method and System for Evaluating Derivatives in Screen Space Using Perspective Corrected Barycentric Coordinates	9/29/2000
	US	363636	Method and System for Transforming Color Coordinates by Direct Calculation	7/30/1999
	US	09/576740	Cheap, Well-Behaved Affine Transformation of Bounding Spheres	5/23/2000
	US	348885	Dual Mode Device and Method for Generating Vector Cross Products or DOT Products	7/1/1999
	US	408961	System and Method for Load Balancing in a Multi-Channel Graphics System	9/30/1999
	US	09/404808	Method, System, and Computer Program Product for Using Alpha Values to Control Pixel Blending	9/24/1999
	US	09/461345	Method, System, and Computer Program Product for Generating Spatially Varying Effects in a Digital Image	12/15/1999
	US	09/565562	Method and Apparatus for Rendering a Quadrangle Primitive	5/4/2000
	US	60/295854	Reducing Fill and Improving Quality of Interlaced Displays Using Multi-Sampling	6/6/2001
	US	09/832138	Scene Representation Method and System	4/10/2001
	US	09/569849	Method and System for Implementing Graphics Control Constructs	5/12/2000
	US	09/569850	Table Indexing System and Method	5/12/2000
	US	09/569821	Method and System for Accelerating Noise	5/12/2000
	US	09/569820	Data Retrieval Method and System	5/12/2000
	US	09/569854	Extended Range Pixel Display Method and System	5/12/2000
	US	09/606988	Method, System and Computer Program Product for Implementing Derivative Operators with Graphics Hardware	6/29/2000
	US	09/638907	Method and System for Executing SIMD Instruction Using Graphics Technology	8/15/2000
	US	09/572452	Method, System, and Computer Program Product for Simulating Camera Depth-of-Field Effects in a Digital Image	5/17/2000
	US	09/489558	An Efficient Graphics Pipeline With a Pixel Cache and Data Pre-Fetching	12/22/1999

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	Country	Application No.	Title	Filing Date
	US	09/470948	A System and Method for Linearly Mapping a Tiled Image Buffer	12/22/1999
	US	09/473209	A Graphics Geometry Cache	12/27/1999
	US	09/473210	View Volume Clip-Check in Object Space	12/27/1999
	US	09/684810	Method, System, and A Computer Program Product For Filtering A Texture Applied To A Surface Of A Computer Generated Object	10/10/2000
	US	09/599971	Method and System for Performing Multi-Texturing Operations Using Recursive Interleaving	8/21/2000
	US	09/688978	System and Method for Efficiently Controlling a Graphics Rendering Pipeline	10/17/2000
	US	60/255883	Method, System and Computer Program Product for Determining Regions That Are Occluded From An Observation Point	12/18/2000
	US	09/684812	Method, System, and Computer Program Product for Anisotropic Filtering and Applications Thereof	10/10/2000
	US	60/253946	System, Method, and Computer Program Product For General Environment Mapping	11/30/2000
	US	60/258323	Hardware-Accelerated Volume Lighting Algorithm	12/28/2000
	US	60/252094	Rendering Volumetric Fog and Other Gaseous Phenomena	11/21/2000
	US	60/238128	Texture Tiling With Adjacency Information	10/6/2000
	US	60/298418	A Volumetric Based Method and System for Visualizing Datasets	8/18/2001
	US	60/252092	Rendering Volumetric Fog and Other Gaseous Phenomena Using an Alpha Channel	11/21/2000
	US	60/252093	Method, System, and Computer Program Product for Rendering Multicolored Layered Fog with Self-Shadowing and Scene Shadowing	11/21/2000
Internet	US	357529	General Purpose Web Annotations Without Modifying Browser	7/19/1999
	US	09/557149	Graphical Method and System for Accessing Information on a Communications Network	4/25/2000
Digital Media	US	09/415037	System and Method for Media Stream Indexing and Synchronization	10/7/1999
	US	09/632558	Workstation for Processing and Producing a Video Signal	8/4/2000
	US	09/632662	System and Method for Pre-Processing a Video Signal	8/4/2000
	US	09/632452	System and Method for Producing a Video Signal	8/4/2000
	US	09/632451	System and Method for Packing and Unpacking Video Data	8/4/2000
	US	08/900421	Synchronizing Motion and Time-Based Data for Transfer Between a Server and a Client	7/25/1997
	US	09/441729	Seamless Playback of Multiple Clips of Media Data Across a Data Network	11/16/1999
	US	09/441722	Frame-Accurate Transport of Media Data Across a Data Network	11/16/1999
	US	09/020072	Backfilling Network Movie Player	2/6/1998
	US	035687	Preemptive Time Multiplexed Shared Memory Access	3/5/1998
	US	09/427197	Video Assistance System with Computer Generated Imagery Overlay	10/25/1999
	US	09/099742	System and Method Using a Packetized Encoded Bitstream for Parallel Compression and Decompression	8/18/1998
	US	09/519309	A Method and System for Efficiently Streaming 3D Animation Across a Wide Area Network	3/6/2000
	US	09/486398	Constant Bitrate Algorithm for Block Based Image Compression	12/17/1999
	US	09/539365	System and Method for Communicating Video Data in a Digital Media Device	3/31/2000

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	Country	Application No.	Title	Filing Date
	US	09/577171	Cost-Optimal Convolution Algorithm With Low or Null Latency	5/23/2000
	US	09/544360	A Technique For Controlling Media Data Streams Using Embedded Controls	4/8/2000
	US	09/521234	Apparatus and Method for Recognizing Color Space of a Digital Video Input	3/8/2000
	US	09/628796	System and Method for Compressing Data	7/28/2000
	US	09/628658	System and Method for Storing Compressed Data onto a Storage Medium	7/28/2000
	US	60/281105	Method and Apparatus for Producing Digital Video from a General Digital Graphics Interface	

Schedule A - Foreign Patents and Applications

Country	App/Patent No.	Title	Foreign Filing Date	Issue Date	Status
EPO	98949608.8	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	9/25/1998		Abandoned
Japan	2000-513248	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	9/25/1998		Pending
PCT	US98/20098	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	9/25/1998		Pending
France	99942475.7	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	5/17/2000		Pending
Japan	2000-568059	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	6/2/2000		Pending
PCT	US99/19353	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	6/23/1999		Pending
UK	99942475.7	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	5/17/2000		Pending
EPO	993207.8	Method And Apparatus For Synchronizing Graphics Pipelines	7/11/2001		Pending
Japan		Method And Apparatus For Synchronizing Graphics Pipelines	7/9/2001		Pending
PCT	US00/00649	Method And Apparatus For Synchronizing Graphics Pipelines	1/7/2000		Pending
PCT	US00/10634	Combined Floating-Point Logic Core And Frame Buffer	4/19/2000		Pending
PCT	US00/107904	Method And Apparatus For Texture Memory Management	3/24/2000		Pending
PCT	US00/10379	Apparatus And Method For Increasing The Bandwidth To A Graphics Subsystem	4/19/2000		Pending
PCT	US00/06184	Device, Method And System For Generating Per-Pixel Light Values Using Texture Parameters	3/8/2000		Abandoned
PCT	US00/40788	Method, System And Computer Program Product For Overlapping Graphics Data Collection And Transmission Using A Single Processor	6/31/2000		Pending
PCT	US99/29984	Method, System And Computer Program Product For Modified Blending Between Clip-Map Tiles	12/17/1998		Pending
PCT	US00/21361	Workstation For Processing And Producing A Video Signal	8/4/2000		Abandoned
PCT	US00/21362	System And Method For Pre-Processing A Video Signal	8/4/2000		Abandoned
PCT	US00/21363	System And Method For Producing A Video Signal	8/4/2000		Abandoned
PCT	US00/21360	System And Method For Packing And Unpacking Video Data	8/4/2000		Abandoned
EPO	99909763.7	Preemptive Time Multiplexed Shared Memory Access	3/2/1999		Pending
Japan	2000-534947	Preemptive Time Multiplexed Shared Memory Access	3/2/1999		Pending
PCT	US99/04616	Preemptive Time Multiplexed Shared Memory Access	3/2/1999		Pending
PCT		System And Method For Compressing Data	7/26/2001		Pending
PCT		System And Method For Storing Compressed Data Onto A Storage Medium	7/27/2001		Pending
Canada	1290670	Pixel Mapping Apparatus For Color Graphics		10/15/1991	Granted
Germany	DE3736195	Pixel Mapping Apparatus For Color Graphics		11/27/1997	Granted
Hong Kong	527	Pixel Mapping Apparatus For Color Graphics		6/3/1993	Granted
Japan	2913086	Pixel Mapping Apparatus For Color Graphics		4/16/1999	Granted
Singapore	2193319	Pixel Mapping Apparatus For Color Graphics		12/28/1991	Granted
UK	2193319	Pixel Mapping Apparatus For Color Graphics		5/29/1991	Granted
India	172327	Dual Clock Shift Register		5/27/1994	Granted
EPO	433373	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		5/29/1998	Granted
France	433373	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		5/29/1998	Granted
Germany	DE68928671	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		5/29/1998	Granted

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Country	App/Patent No.	Title	Foreign Filing Date	Issue Date	Status
Japan	2884280	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		2/12/1998	Granted
Korea	131820	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		12/4/1997	Granted
Switzerland	433373	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		5/29/1998	Granted
Canada	1276312	Interleaved Pipeline Parallel Processing Architecture		11/13/1999	Granted
EPO	96912783.8	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1996		Pending
PCT	US95/02853	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1996		Abandoned
JP	9610309	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1996		
EPO	96928193	Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image	8/15/1996		Abandoned
PCT	US96/13246	Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image	8/15/1996		Abandoned
EPO	96939541.7	A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Mip-Map	11/8/1996		Abandoned
PCT	US96/17673	A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Mip-Map	11/8/1996		Abandoned
EPO	97917591.8	System And Method For Color Space Conversion Using An Extended Color Space	3/28/1997		Abandoned
PCT	US97/04691	System And Method For Color Space Conversion Using An Extended Color Space	3/28/1997		Abandoned
Canada	2214968	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	9/9/1997		Pending
EPO	97306897.8	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	9/9/1997		Pending
Japan	251134.97	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	9/16/1997		Pending
Mexico	976495	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	9/28/1997		Pending
PCT	US99/16075	Method And Apparatus For Virtual Address Translation	7/1/1999		Abandoned
PCT	US99/19602	System and Method for Combining Multiple Video Streams	8/28/1999		Abandoned
PCT	US99/0946	Digital Filtering for Lenticular Printing	8/18/1992		Abandoned
AU	9225465	Digital Filtering for Lenticular Printing	8/18/1992		Abandoned
PCT	US89/3824	Method and Apparatus for Clearing a Region of Z-Buffer	9/12/1989		Abandoned
EP	551251	Method and Apparatus for Clearing a Region of Z-Buffer	9/12/1989	2/7/1996	Abandoned
DE	68925951	Method and Apparatus for Clearing a Region of Z-Buffer	9/12/1989	3/21/1996	Abandoned
PCT	WO90/02991	Graphics Processor with Staggered Memory Timing	published 3/22/1990		Abandoned
PCT	WO91/12589	Method and Apparatus for Producing a Visually Improved Image in a Computer System	published 6/22/1991		Abandoned
AU	9173134	Method and Apparatus for Producing a Visually Improved Image in a Computer System	published 9/3/1991		Abandoned
PCT	US00/16745	Computer System Having A Distributed Texture Memory Architecture	6/16/2000		Pending

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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
09/369,359	08/06/1999	BRIAN KEITH CABRAL	15-4-825.00

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WOODCOCK, WASHBURN LLP
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Date Mailed: 11/12/2002

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/28/2002.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

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Paper: Recordation Form Cover Sheet (Patents Only); Assignment Document
from Silicon Graphics to Microsoft Corporation; check for \$40.00; postcard

Applicant(s): Brian Keith Cabral

Title: Reflection Space Image Based Rendering

Application No.: 09/369,359

Filed: August 6, 1999

Docket No.: MSFT-1083

Date Sent: August 5, 2003

Sent By: R. Scott/M. Devine



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MSFT-1083/191733.1

To The Honorable Commissioner of Patents and Trademarks. Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Silicon Graphics, Inc. **September 28, 2001**
First Assignor Date of Execution

Second Assignor Date of Execution

Third Assignor Date of Execution

Fourth Assignor Date of Execution

Fifth Assignor Date of Execution

Sixth Assignor Date of Execution

Additional name(s) of conveying party(ies) attached? ☐ YES ☒ NO

2. Name and address of receiving party(ies):

Name: **Microsoft Corporation**

Street Address: **One Microsoft Way**

City: **Redmond**

State **Washington** ZIP **98052-6399**

Additional name(s) & address attached? ☐ YES ☒ NO

3. Nature of Conveyance (check only one):

- | | |
|--|---|
| <input checked="" type="checkbox"/> New Assignment | <input type="checkbox"/> Merger |
| <input type="checkbox"/> License Agreement | <input type="checkbox"/> Security Agreement |
| <input type="checkbox"/> Change of Name | <input type="checkbox"/> Other: |

4. Identification of Application number(s), patent number(s) OR date of execution of application to which assignment refers:

Application Nos.:

09/369,359, Filed August 6, 1999

Patent Nos.:

Date application was signed by the first named executing inventor

(Fill-in this date only if assignment is filed together with a new application)

5. Name and address of party to whom correspondence concerning documents should be mailed:

Name: **Raymond N. Scott, Jr.**
WOODCOCK WASHBURN LLP
One Liberty Place - 46th Floor
Philadelphia, Pennsylvania 19103-7301
215-568-3100

6. Total number of applications and patents involved: **1**

7. Total fee (37 CFR 3.41): \$40.00
☒ Enclosed
☐ Authorized to be charged to Deposit Account Number 23-3050

8. Please charge any deficiency or credit any overpayment to Deposit Account Number 23-3050

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

MaryAnn Devine

Name of Person Signing

Signature

8/5/03
Date

Total number of pages including cover sheet, assignment document and additional pages attached thereto: **15**

Mail documents to be recorded with required cover sheet information to:

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ASSIGNMENT

WHEREAS, SILICON GRAPHICS, INC., a Delaware Corporation, (hereinafter referred to as "Assignor") owns all right, title and interest in and to the inventions, patents and patent applications (hereinafter referred to as the "Intellectual Property") identified in Schedule A attached hereto; and

WHEREAS, MICROSOFT CORPORATION, a Washington Corporation, (hereinafter referred to as "Assignee"), is desirous of acquiring the entire domestic and foreign right, title, and interest in and under the Intellectual Property.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor assigns and transfers to the Assignee and the Assignee's legal representatives, successors and assigns, pursuant to the terms of a concurrently executed Confidential Patent Assignment Agreement, its full and exclusive rights in and to the Intellectual Property in the U.S. and every foreign country and its entire right, title, and interest in and to the Intellectual Property and related applications (e.g., provisional applications, non-provisional applications, continuations, continuations-in-part, divisionals, reissues, reexaminations, National phase applications, including petty patent applications, and utility model applications) that may be filed in the United States and every foreign country on the Intellectual Property, and extensions or derivations thereof, both foreign and domestic, that may issue thereon, and we do hereby authorize and request the Commissioner of Patents to issue U.S. patents to the above-mentioned Assignee agreeably with the terms of this assignment document.

ASSIGNOR HEREBY AUTHORIZES the Assignee to insert in Schedule A to this assignment document the filing date and application number of any application if the date and number are unavailable at the time this document is executed.

UPON SAID CONSIDERATION, Assignor conveys to the Assignee the right to make application in its own behalf for protection of the Intellectual Property in the U.S. and countries foreign to the U.S. and to claim under the Patent Cooperation Treaty, the International Convention and/or other international arrangement for any such application the date of any earlier U.S. application (or any other application on the invention) to gain priority with respect to other applications.

IN WITNESS WHEREOF, Assignor has caused one of its officers to hereunder set his hand on the date shown below.

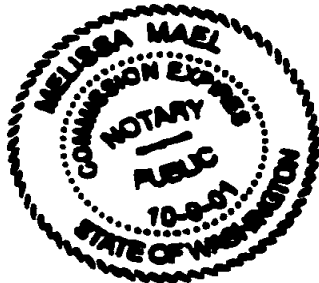
Date 9/28/01

Sandra Escher
Senior Vice President
Title

STATE OF Washington)
COUNTY OF King) ss:

On this 28th day of September, 2001, before me, a Notary Public in and for said county, appeared _____, who is personally known to me to be the same person whose name is subscribed to the foregoing assignment document, and acknowledged that he/she signed and delivered the document as his/her free and voluntary act for the uses and purposes therein set forth.

(SEAL)



Melissa Mael
Notary Public
My Commission Expires: 10-9-01

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
Digital Media	US	5,908,834	Rotating Sample of Video Images	4/9/1998
	US	5,746,713	Movie-Based Facility for Launching Application Programs or Services	4/28/1998
	US	5,774,888	System and Method for Displaying Uniform Network Resource Locators Embedded in Time-Based Medium	6/30/1998
	US	5,887,508	System and Method for Displaying an Active URL During Playback of a Media File or Media Broadcast	11/18/1998
	US	5,808,882	Synchronized, Interactive Playback of Digital Movies Across a Network	9/14/1998
	US	5,843,347	Apparatus and Method for Error Concealment in an Audio Stream	8/24/1998
	US	6,006,800	High Performance Player for Distributed, Time-Based Media	12/21/1998
	US	6,147,888	System and Method for Combining Multiple Video Streams	11/14/2000
	US	6,075,908	System and Method for the Scaling of Image Streams that Use Motion Vectors	6/13/2000
	US	6,368,588	Video Camera Used with Personal Computer	12/28/1999
	US	5,604,888	Flow Control System Having a Counter in Transmitter for Determining and Incrementing Based Upon Transmitting and Received Message Size Respectively for Indicating Free Space in Receiver	2/18/1997
	US	5,311,329	Digital Filtering for Lenticular Printing	5/10/1994
	US	5,438,438	Digital Filtering for Lenticular Printing	6/1/1998
	US	6,070,008	System Software for Use in a Graphics Computer System Having a Shared System Memory	3/30/2000
Internet	US	5,848,188	System and Method for a Computer-Based Dynamic Information Clipping Service	
	US	5,737,880	Graphical Method and System for Accessing Information on a Communications Network	4/7/1998
	US	5,877,787	Graphical Method and System for Accessing Information on a Communications Network	3/2/1998
	US	5,742,768	System and Method for Providing and Displaying a Web Page Having an Embedded Menu	
	US	5,880,170	Method and Apparatus for Publishing Documents in a Hypertextual Network Environment	3/30/1998
	US	6,038,433	Method of Creating and Editing a Web Site in a Client-Server Environment Using Customizable Web Site Templates	2/15/2000
	US	6,072,481	Method and Computer Program Product for Accessing a Web Site	6/8/2000
	US	6,088,088	Web-Site Delivery	6/1/2000
	US	6,088,082	Server to Dynamically Generate Graphics for the World Wide Web	6/1/2000
	US	6,188,029	Web Survey Tool Builder and Result Compiler	2/13/2001
	US	6,081,829	General Purpose Web Annotations Without Modifying Browser	6/27/2000
	US	6,188,688	Method and Apparatus for Providing an Expandable, Hierarchical Index in a Hypertextual, Client-Server Environment	3/8/2001
	US	6,012,088	Mechanism for Integrated Information Search and Retrieval from Diverse Sources Using Multiple Navigation Methods	1/4/2000
	US	4,772,881	Pixel Mapping Apparatus for Color Graphics Display	9/29/1988
Graphics Rendering	US	5,038,257	Method and Apparatus for Clearing a Region of Z-Buffer	6/8/1991
	US	5,197,128	Clock Switching Circuit for Asynchronous Clocks of Graphics Generation Apparatus	3/23/1993

Schedule A - U.S. Patents

Country	Patent No.	Title	Issue Date
US	4,771,270	Dual Clock Shift Register	9/13/1988
US	4,861,232	Method for Updating Pipelined Single Port Z-Buffer by Segments on a Scan Line	8/21/1990
US	4,768,827	Interleaved Pipeline Parallel Processing Architecture	12/8/1988
US	5,113,480	Method for Forming a Computer Model from an Intersection of a Cutting Surface with a Bounded Volume	5/12/1992
US	5,182,548	Method and Apparatus for Painting on a Computer	1/28/1993
US	4,891,118	Graphics Processor with Staggered Memory Timing	2/5/1991
US	5,128,068	Graphics Processor with Staggered Memory Timing	7/7/1992
US	5,182,148	Method and Apparatus for Producing a Visually Improved Image in a Computer System	3/9/1993
US	5,847,700	Integrated Apparatus for Displaying a Plurality of Modes of Color Information on a Computer Output Display	12/8/1998
US	5,371,818	Video Timing and Display ID Generator	12/8/1994
US	5,621,432	Method and Apparatus for Generating Display Identification Information	4/15/1997
US	5,081,727	Efficient Graphics Process for Clipping Polygons	8/24/1991
US	5,288,941	Apparatus and Method for Controlling Storage of Display Information in a Computer System	11/30/1993
US	5,384,170	Apparatus and Method for Controlling Storage of Display Information in a Computer System	2/28/1995
US	5,768,582	Graphical Representation of Computer Network Topology and Activity	8/18/1998
US	5,588,834	Graphics Memory Apparatus and Method	12/17/1998
US	5,818,433	Graphics Memory Apparatus and Method	10/8/1998
US	5,307,460	Z-Subdivision for Improved Texture Mapping	4/28/1994
US	5,230,038	Texture Range Controls for Improved Texture Mapping	7/20/1993
US	5,349,588	Method for Scan Converting Shaded Triangular Polygons	8/30/1994
US	5,347,818	Method for Display Rendering by Determining the Coverage of Pixels in Polygons	9/13/1994
US	5,348,283	High Speed Cursor Generation Apparatus	9/8/1994
US	5,288,188	Method and Apparatus for Accomplishing Z-Buffering by Prediction	11/23/1993
US	5,848,708	An Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System	8/20/1998
US	5,708,481	Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System	1/8/1998
US	5,884,838	Antialiased Imaging with Improved Pixel Supersampling	11/14/1997
US	5,872,800	Antialiased Imaging with Improved Pixel Supersampling	6/8/2000
US	5,881,880	Method and Apparatus for Antialiasing Raster Scanned Images	12/3/1998
US	5,638,338	Method for Designing Curved Shapes for Use by a Computer	8/3/1997
US	5,818,484	Method and Apparatus for Rendering Volumetric Images	5/7/1998
US	5,388,738	Apparatus and Method for Generating Point Sample Masks in a Graphics Display System	11/29/1994
US	5,828,787	Processor-Based Method for Rasterizing Polygons at an Arbitrary Precision	8/18/1998
US	5,858,782	A Method and Apparatus for Projective Texture Mapping Rendered from Arbitrarily Positioned and Oriented Light Sources	9/8/1998
US	5,682,884	Apparatus and Method for Handling Data Transfer Between a General Purpose Computer and a Cooperating Processor	10/28/1997
US			

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
		5,457,778	System for Accessing Graphic Data in a SIMD Processing Environment	10/10/1995
	US	5,571,401	Apparatus for Efficiently Accessing Graphic Data for Rendering on a Display	9/23/1997
	US	5,742,748	A Method and Apparatus for Shadow Generation Through Depth Mapping	4/21/1998
	US	5,480,240	A System and Method of Generating Interactive Computer Graphic Images Incorporating Three Dimensional Textures	2/8/1998
	US	5,438,884	System and Method for Sharpening Texture Imagery in Computer Generated Interactive Graphics	8/1/1998
	US	5,468,827	Programmable Video Output Format Generator	10/3/1998
	US	5,471,572	A System and Method for Adding Detail to Textures Imagery in Computer Generated Interactive Graphics	11/28/1998
	US	5,704,934	A Method & Apparatus for Generating Reflection Vectors Which can be Unnormalized and For Using These Reflection Vectors to Index Locations on an Environment Map	12/30/1997
	US	5,848,082	An Efficient Algorithm for Computer Texture Coordinates for Lines & Polygons	7/16/1997
	US	5,828,738	Method and Apparatus for Antialiasing Raster Scanned, Polygonal Shaped Images	6/18/1998
	US	5,818,987	Method for Sampling a Uniform Spatially-Distributed Sequence of Pixels in a Block	8/5/1997
	US	5,718,578	A Computer Graphics System for Rendering Images Using Full Spectral Illumination Data	1/23/1998
	US	5,638,128	Optical System for Single Camera	11/10/1998
	US	5,808,481	Programmable Video Frame Detector	3/4/1997
	US	5,703,810	Improved DRAM for Texture Mapping	12/30/1997
	US	5,843,088	Texture Mapping Circuit for Performing Data Interpolations	8/24/1999
	US	5,862,838	System and Method for Antialiasing of Texture Edges	11/8/1998
	US	5,844,987	Computer Graphics System and Method for Texture Mapping Using Triangular Interpolation	12/1/1998
	US	5,818,017	Apparatus and Method for Selectively Storing Depth Information of a 3-D Image	10/6/1998
	US	5,877,771	A Method and Apparatus for Super-sampling Based on the Local Rate of Change in Texture	3/2/1999
	US	5,788,783	A Method and Apparatus for Providing Texture Using a Selected Portion of a Texture MAP-MAP	8/2/1998
	US	5,818,813	System and Method for Color Space Conversion	10/8/1998
	US	5,788,888	Apparatus and Method for Accelerated Tiled Data Retrieval	4/7/1998
	US	5,887,478	Hierarchical Display List Processing in Graphics Data Retrieval System	8/12/1997
	US	5,828,828	Computer Graphics Silhouette Load Management	8/10/1998
	US	5,848,874	System and Method for Creating Visual Images of Aircraft Wake Vortices	12/8/1998
	US	6,228,083	Method for Rendering Silhouettes and True Edges of 3-D Line Drawings with Occlusion	5/1/2001
	US	6,131,188	System and Method to Efficiently Represent Address and Indirect Memory Operations in Static Single Assignment Form During Compilation	10/10/2000
	US	5,848,113	System and Method for Color Space Conversion Using an Extended Color Space	8/31/1998
	US	6,147,772	System and Method for Color Space Conversion Using an Extended Color Space	11/14/2000
	US	5,831,620	System and Computer-Based Method for Creating Real-Time Mirror Reflections	11/3/1998

Schedule A - U.S. Patents

Country	Patent No.	Title	Issue Date
	5,915,162	Computational Low-Cost Anti-Aliased Bresenham Line Algorithm	9/28/1998
US	6,248,288	Multi-Purpose High Resolution Distortion Correction	6/18/2001
US	5,848,424	Method, System and Computer Program Product for Bump Mapping in Tangent Space	9/7/1999
US	5,880,738	Method, System and Computer Program Product for Shading	3/8/1999
US	6,163,318	Method, System and Computer Program Product for Shading	12/18/2000
US	6,104,417	Unified Memory Computer Architecture with Dynamic Graphics Memory Allocation	8/15/2000
US	6,184,784	Upstream Situated Apparatus and Method within a Computer System for Controlling Data Flow to a Downstream Situated Input/Output Unit	11/28/2000
US	6,078,331	A Method and System for Efficiently Drawing Subdivision Surfaces for 3D Graphics	6/20/2000
US	6,078,332	Real-Time Lighting Algorithm Using 3D Texture Mapping	6/20/2000
US	6,178,387	A Method and System for Real Time Illumination of Computer Generated Images	1/16/2001
US	6,002,408	System and Method for Storing and Accessing Data Representative of an Object in Various Levels of Detail	12/14/1998
US	6,184,218	Method and Apparatus for Maintaining Multiple Representations of a Scene Scene in Computer Generated Graphics	11/28/2000
US	6,067,880	Blended Texture Illumination Mapping	5/2/2000
US	6,067,982	Latching Assembly for a Computer	6/1/1999
US	6,215,488	A Platform Independent Application Program Interface for Interactive 3D Scene Management	4/10/2001
US	6,108,007	Method, System and Computer Program Product for Increasing Interpolation Precision Using Multi-Channel Texture Mapping	8/22/2000
US	6,104,418	Method for Accelerating Minified Textured Cache Access	8/15/2000
US	6,238,881	Method for Improving Texture Locality for Pixel Quads by Diagonal Level of Detail Calculation	9/15/2001
US	6,232,878	Method, System and Computer Program Product for Fast Computation Using Parallel Multi-Channel Resampling and Blending	5/15/2001
US	6,348,418	Method and Apparatus for Culling Polygons	6/12/2001
US	6,238,413	Method and System for a RISC Graphics Pipeline Optimized for High Clock Speeds by Using Redirection	9/22/2001
US	6,078,848	A Pocketized Command Interface to a Graphics Processor	6/13/2000
US	6,230,177	Method and Apparatus for Performing Fast Fourier Transforms	5/8/2001
US	6,282,810	Method and Apparatus for Efficiently Switching State in a Graphics Pipeline	6/28/2001
US	6,128,838	Method and Apparatus for Calculating X to the Exponent of Y	10/3/2000
US	6,133,801	Method and System for Width Independent Antialiasing	10/17/2000
US	6,081,425	Constant Multisample Image Coverage Mask	7/18/2000
US	6,308,631	Method and Apparatus for Virtual Address Translation	3/20/2001
US	6,288,888	Apparatus and Method for Extending Computational Precision of a Computer System Having a Modular Arithmetic Processing Unit	7/3/2001
US	6,228,647	System and Method for Rendering Multi-Planar Refractions Using Bi-Linear Interpolation	5/8/2001

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
		6,288,881	Volumetric Three-Dimensional Fog Rendering Technique	7/31/2001
	US	6,163,320	Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique	12/18/2000
	US			

Schedule A - Pending Patent Applications

	Country	Application No.	Title	Filing Date
Tablet Computing	US	198100	"Pen-Based Interface for a Networked Computer"	11/20/1998
	US	198114	"Pen-Based Computer System"	11/20/1998
Graphics Rendering	US	08/005129	System and Method for the Direct Rendering of Curve Bounded Objects	1/8/1999
	US	191488	Floating Point Gamma Correction Method And System	11/12/1998
	US	08/217388	High Precision Texture Wrapping Method And Device	12/21/1998
	US	286487	Method And Device For Associating A Pixel With One Of A Plurality Of Regions In A Logarithm Or Cosine Space	3/2/1999
	US	072088	Method and System For Providing Texture Using A Selected Portion of a Texture Map	5/5/1998
	US	033883	Improved Chroma-Key Suppression Method and Apparatus	3/3/1999
	US	08/244275	Memory Chip For Use in a Unified Memory Architecture	2/3/1999
	US	244381	Memory Controller for Controlling Memory in a Computer System Having a Unified Memory Architecture	2/3/1999
	US	244384	IO Chip in a Computer System Having a Unified Memory Architecture	2/3/1999
	US	220078	System and Method for Morphing Based on Multiple Weighted Parameters	12/23/1998
	US	648826	A Method and System for Efficiently Evaluating and Drawing Nurbs Surfaces for 3D Graphics	4/28/1997
	US	889123	System and Method for Displaying Different Portions of an Object in Different LOD Levels	7/22/1997
	US	070808	System and Method for Displaying Different Portions of an Object in Different Levels of Detail	8/1/1998
	US	074087	Occlusion Culling For Complex Transparent Scenes in Computer Generated Graphics	5/8/1998
	US	137006	Method and System for Performing Rasterization in Producing Three-Dimensional Graphics Using YUV Color Space and Containing Same with Digital Video in YUV Color Space	8/20/1998
	US	038378	Subsampled Texture Edge Antialiasing	3/5/1999
	US	988837	Method and Apparatus for Providing Image and Graphics Processing Using a Graphics Rendering Engine	10/23/1997
	US	937763	Method, System and Computer Program Product for Providing Illumination in Computer Graphics Shading and Animation	8/23/1997
	US	08/048088	Method for Efficient Handling of Texture Cache Misses by Rasterization	3/28/1998
	US	08/081073	Method and Apparatus for Line Antialiasing by Gamma-Corrected Area Calculation	5/18/1998
	US	258138	System and Method for Rendering an Image	2/8/1999
	US	08/448807	A Packaged Command Interface to a Graphics Processor	11/23/1998
	US	08/648188	A Packaged Command Interface to a Graphics Processor	4/13/2000
	US	08/488116	Method and Apparatus For Rasterizing in a Hierarchical Tile Order	8/2/1998
	US	978798	Range Correct Layered Fog Model Using 3D Texture	11/28/1997
	US	111284	Backface Primitives Culling	7/8/1998
	US	201814	Multi-Threaded Texture Modulation for Axis Aligned Volume Rendering	12/1/1998
	US	247432	Multi-sample Filter Method With Exact Reconstruction	2/10/1999

Schedule A - Pending Patent Applications

Country	Application No.	Title	Filing Date
US	08/227227	Method and Apparatus For Synchronizing Graphics Pipelines	1/8/1998
US	218121	Scalable Network Based Computer Graphics System	12/21/1998
US	348071	Computer System Having A Distributed Texture Memory Architecture	7/1/1999
US	08/707418	Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique	11/8/2000
US	348882	Antialiasing Method Using Barycentric Coordinates Applied to Lines	7/1/1998
US	08/228886	System and Method For Transferring Between Two Filters, Allowing For The Use of Higher Order Interpolation	12/28/1998
US	08/418085	Method, System, and Computer Program Product For Compositing True Colors and Intensity-Mapped Colors Into A Frame Buffer	10/12/1998
US	218042	System and Method For Locking Disparate Video Frames	12/22/1998
US	08/247886	Method For Interfacing to Ultra-High Resolution Output Devices	2/10/1999
US	232880	Method For Tiling Multiple Displays to Generate a Large Area Display of Moving Data	1/15/1999
US	294848	Combined Floating-Point Logic Core and Frame Buffer Apparatus and Method for Sharing Antialiasing Memory Across Multiple Displays	4/18/1998
US	08/294480	Transformation Pipeline for the Computing Distortion Correction Geometry for any Design Eyepoint, Display Surface Geometry and Projector Position	3/28/1999
US	277887	Antialiasing Method for Computer Graphics	3/23/1999
US	388278	Processor for Geometry Transformations and Lighting Calculations	12/22/1998
US	08/220198	System and Method for Maintaining Time Dependencies in Conversions That Include Parallel Operations	3/8/1998
US	283188	A Method and System for Efficiently Implementing Two Sided Vertex Lighting in Hardware	12/20/1998
US	08/467881	Method and Apparatus for Texture Memory Management	3/24/1999
US	278728	Method and Apparatus for Early Culling of Occluded Objects	2/9/1998
US	08/247818	Method and System for Generating Light Values for a Set of Vertices	7/1/1998
US	348841	Method and System for Dynamic Clock Frequency Adjustment for a Graphics Subsystem in a Computer	3/18/1999
US	273247	Fine Grain Multi-Pass for Multiple Texture Rendering	5/7/1998
US	388887	Method and System for Dynamic Texture Replication on a Distributed Memory Graphics Architecture	6/24/1998
US	344008	Cashio Memory For High Latency and Out-of-Order Return of Texture Data	7/1/1998
US	348388	Method for Virtual Clipping A Three-Dimensional Graphics Image	6/8/1998
US	328008	A Method and System For Efficient Simplification of Tetrahedral Meshes Used in 3D Volumetric Representations	2/11/2000
US	08/802487		

Schedule A - Pending Patent Applications

Country	Application No.	Title	Filing Date
US	09/377778	Method, System and Computer Program Product for Multi-Pass Bump-Mapping into an Environment Map	5/20/1999
US	328184	Method and Apparatus for a Modified Linear Filter Using Texture Data as Phase Angle	8/8/1999
US	303884	View-Dependent Layer Ordering Method and System	5/3/1999
US	300918	Method and System for Narrative Morphing	4/23/1999
US	283088	Apparatus and Method for Increasing the Bandwidth to a Graphics Subsystem	4/19/1999
US	286483	Device, Method and System for Generating Per-Pixel Light Values Using Texture Parameters	3/9/1999
US	308378	Method, System, and Computer Program Product for Efficient Buffer Level Management of Memory-Buffered Graphics Data	8/31/1998
US	308378	Method, System and Computer Program Product for Overlapping Graphics Data Collection and Transmission Using a Single Processor	8/31/1998
US	220882	Method, System and Computer Program Product for Modified Blending Between Clip-Map Tiles	12/23/1998
US	09/389388	Reflection Space Image Based Rendering	8/8/1998
US	09/727888	Texture Generating Apparatus For Dynamic Interference Checking	11/30/2000
US	09/578878	Method and System for Evaluating Derivatives in Screen Space Using Perspective Corrected Barycentric Coordinates	9/28/2000
US	383838	Method and System for Transforming Color Coordinates by Direct Calculation	7/28/1999
US	09/576748	Cheap, Well-Behaved Affine Transformation of Bounding Spheres	3/23/2000
US	348888	Dual Mode Device and Method for Generating Vector Cross Products or DOT Products	7/1/1999
US	408881	System and Method for Least Squaring in a Multi-Channel Graphics System	9/30/1998
US	09/404808	Method, System, and Computer Program Product for Using Alpha Values to Control Pixel Blending	3/24/1999
US	09/481348	Method, System, and Computer Program Product for Generating Speciously Varying Effects in a Digital Image	12/15/1998
US	09/885882	Method and Apparatus for Rendering a Quadrangle Primitive	8/4/2000
US	89/295884	Reducing Pli and Improving Quality of Interlaced Displays Using Multi-Sampling	8/8/2001
US	09/832138	Scene Representation Method and System	4/10/2001
US	09/888848	Method and System for Implementing Graphics Control Constructs	8/12/2000
US	09/888888	Table Indexing System and Method	8/12/2000
US	09/888821	Method and System for Accelerating Noise	8/12/2000
US	09/888820	Data Retrieval Method and System	8/12/2000
US	09/888884	Extended Range Pixel Display Method and System	8/12/2000
US	09/888888	Method, System and Computer Program Product for Implementing Derivative Operators with Graphics Hardware	8/28/2000
US	09/838807	Method and System for Executing SIMD Instruction Using Graphics Technology	8/15/2000
US	09/873482	Method, System, and Computer Program Product for Simulating Camera Depth-of-Field Effects in a Digital Image	8/17/2000
US	09/488888	An Efficient Graphics Pipeline With a Pixel Cache and Data Pre-Patching	12/23/1998

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	Country	Application No.	Title	Filing Date
	US	09/470848	A System and Method for Linearly Mapping a Tile Image Buffer	12/22/1999
	US	09/473208	A Graphics Geometry Cache	12/27/1999
	US	09/473210	View Volume Clip-Check in Object Space	12/27/1999
	US	09/584810	Method, System, and A Computer Program Product For Filtering A Texture Applied To A Surface Of A Computer Generated Object	10/10/2000
	US	09/588971	Method and System for Performing Multi-Texturing Operations Using Recursive Interleaving	6/21/2000
	US	09/588978	System and Method for Efficiently Controlling a Graphics Rendering Pipeline	10/17/2000
	US	09/255353	Method, System and Computer Program Product for Determining Regions That Are Occluded From An Observation Point	12/18/2000
	US	09/584812	Method, System, and Computer Program Product for Anisotropic Filtering and Applications Thereof	10/10/2000
	US	09/253846	System, Method, and Computer Program Product For General Environment Mapping	11/30/2000
	US	09/255323	Hardware-Accelerated Volume Lighting Algorithm	12/28/2000
	US	09/232084	Rendering Volumetric Fog and Other Gaseous Phenomena	11/21/2000
	US	09/235125	Texture Tiling With Adjacency Information	10/9/2000
	US	09/289416	A Volumetric Based Method and System for Visualizing Debris	8/18/2001
	US	09/253082	Rendering Volumetric Fog and Other Gaseous Phenomena Using an Alpha Channel	11/21/2000
	US	09/253083	Method, System, and Computer Program Product for Rendering Multicolored Layered Fog with Self-Shadowing and Scene Shadowing	11/21/2000
	US	387528	General Purpose Web Annotations Without Modifying Browser	7/18/1999
Internet	US	09/57149	Graphical Method and System for Accessing Information on a Communications Network	4/25/2000
	US	09/418037	System and Method for Media Stream Indexing and Synchronization	10/7/1999
Digital Media	US	09/532535	Workstation for Processing and Producing a Video Signal	8/4/2000
	US	09/533882	System and Method for Pre-Processing a Video Signal	8/4/2000
	US	09/532482	System and Method for Producing a Video Signal	8/4/2000
	US	09/533481	System and Method for Packing and Unpacking Video Data	8/4/2000
	US	09/500421	Synchronizing Motion and Time-Based Data for Transfer Between a Server and a Client	7/25/1997
	US	09/441728	Seamless Playback of Multiple Clips of Media Data Across a Data Network	11/18/1999
	US	09/441722	Frame-Accurate Transport of Media Data Across a Data Network	11/18/1999
	US	09/030072	Backchannel Network Movie Player	2/8/1998
	US	638867	Predictive Time Multiplexed Shared Memory Access	3/8/1998
	US	09/427187	Video Assistance System with Computer Generated Imagery Overlay	10/25/1999
	US	09/089743	System and Method Using a Packetized Encoded Stream for Parallel Compression and Decompression	6/18/1998
	US	09/518309	A Method and System for Efficiently Streaming 3D Animation Across a Wide Area Network	3/8/2000
	US	09/488386	Consistent Stride Algorithm for Block Based Image Compression	12/17/1998
	US	09/535353	System and Method for Communicating Video Data in a Digital Media Device	3/31/2000

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Country	Application No.	Title	Filing Date
US	09/577171	Cost-Optimal Conversion Algorithm With Low or No Latency	5/23/2000
US	09/644300	A Technique For Controlling Media Data Streams Using Embedded Controls	4/8/2000
US	09/821234	Apparatus and Method for Recognizing Color Space of a Digital Video Input	3/8/2000
US	09/636788	System and Method for Compressing Data	7/28/2000
US	09/628588	System and Method for Storing Compressed Data onto a Storage Medium	7/28/2000
US	09/281106	Method and Apparatus for Producing Digital Video from a General Digital Graphics Interface	

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Country	App/Patent No.	Title	Foreign Filing Date	Issue Date	Status
EPO	9894985.8	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	8/25/1998		Abandoned
Japan	2000-813248	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	8/25/1998		Pending
PCT	US98/20098	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	8/25/1998		Pending
France	98943475.7	Method And Apparatus For Restoring In A Hierarchical Tree Order	8/17/2000		Pending
Japan	2000-089098	Method And Apparatus For Restoring In A Hierarchical Tree Order	8/29/2000		Pending
PCT	US99/18383	Method And Apparatus For Restoring In A Hierarchical Tree Order	8/29/1998		Pending
UK	98943475.7	Method And Apparatus For Restoring In A Hierarchical Tree Order	8/17/2000		Pending
EPO	989307.9	Method And Apparatus For Synchronizing Graphics Pipelines	7/11/2001		Pending
Japan		Method And Apparatus For Synchronizing Graphics Pipelines	7/8/2001		Pending
PCT	US99/00649	Method And Apparatus For Synchronizing Graphics Pipelines	1/7/2000		Pending
PCT	US99/10834	Combined Floating-Point Logic Core And Frame Buffer	4/18/2000		Pending
PCT	US99/107804	Method And Apparatus For Texture Memory Management	3/24/2000		Pending
PCT	US99/10578	Apparatus And Method For Increasing The Bandwidth To A Graphics Subsystem	4/18/2000		Pending
PCT	US99/08184	Device, Method And System For Generating Per-Pixel Light Values Using Texture Parameters	3/8/2000		Abandoned
PCT	US99/040788	Method, System And Computer Program Product For Overlapping Graphics Data Collection And Transmission Using A Single Processor	8/31/2000		Pending
PCT	US99/23884	Method, System And Computer Program Product For Modified Blending Between Clip-Map Tiles	12/17/1999		Pending
PCT	US99/21381	Workstation For Processing And Producing A Video Signal	8/4/2000		Abandoned
PCT	US99/21382	System And Method For Pre-Processing A Video Signal	8/4/2000		Abandoned
PCT	US99/21383	System And Method For Producing A Video Signal	8/4/2000		Abandoned
PCT	US99/21380	System And Method For Packing And Unpacking Video Data	8/4/2000		Pending
EPO	9899788.7	Prospective Tree Multithread Shared Memory Access	3/2/1999		Pending
Japan	2000-084947	Prospective Tree Multithread Shared Memory Access	3/2/1999		Pending
PCT	US99/04918	Prospective Tree Multithread Shared Memory Access	7/28/2001		Pending
PCT		System And Method For Compressing Data			Pending
PCT		System And Method For Storing Compressed Data On A Storage Medium	7/27/2001	10/15/1991	Granted
Canada	1298879	Pixel Mapping Apparatus For Color Graphics		11/27/1997	Granted
Germany	089739188	Pixel Mapping Apparatus For Color Graphics		8/3/1993	Granted
Hong Kong	887	Pixel Mapping Apparatus For Color Graphics		4/18/1999	Granted
Japan	2013088	Pixel Mapping Apparatus For Color Graphics		12/28/1991	Granted
Singapore	2108918	Pixel Mapping Apparatus For Color Graphics		8/28/1991	Granted
UK	2108918	Pixel Mapping Apparatus For Color Graphics		8/27/1994	Granted
India	178827	Queue Clock Shift Register			
EPO	438573	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		6/29/1998	Granted
France	438573	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		6/29/1998	Granted
Germany	089928671	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		8/28/1998	Granted

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Country	App/Patent No.	Title	Foreign Filing Date	Issue Date	Status
Japan	2884388	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		2/12/1998	Granted
Korea	131628	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		12/4/1997	Granted
Switzerland	433873	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		5/28/1998	Granted
Canada	1278812	Interleaved Pipeline Parallel Processing Architecture		11/12/1998	Granted
EPO	88912788.8	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1995		Pending
PCT	US95/02883	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1995		Abandoned
JP	8816389	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1995		Abandoned
EPO	88888183	Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image	8/15/1995		Abandoned
PCT	US95/13345	Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image	8/15/1995		Abandoned
EPO	88838841.7	A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Map-Map	11/8/1995		Abandoned
PCT	US95/17673	A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Map-Map	11/8/1995		Abandoned
EPO	87017881.8	System And Method For Color Space Conversion Using An Extended Color Space	3/28/1997		Abandoned
PCT	US97/04891	System And Method For Color Space Conversion Using An Extended Color Space	3/28/1997		Abandoned
Canada	2214888	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	8/8/1997		Pending
EPO	87288887.8	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	8/8/1997		Pending
Japan	281134.87	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	8/18/1997		Pending
Mexico	878488	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	8/28/1997		Pending
PCT	US98/18078	Method And Apparatus For Virtual Address Translation	7/1/1998		Abandoned
PCT	US98/18082	System And Method For Combining Multiple Video Streams	8/28/1998		Abandoned
PCT	US98/0848	Digital Filtering For Lensular Printing	8/18/1998		Abandoned
AU	8888488	Digital Filtering For Lensular Printing	8/18/1998		Abandoned
PCT	US98/0824	Method and Apparatus for Clearing a Region of Z-Buffer	8/12/1998	3/7/1998	Abandoned
EP	881281	Method and Apparatus for Clearing a Region of Z-Buffer	8/12/1998	3/21/1998	Abandoned
DE	88888881	Method and Apparatus for Clearing a Region of Z-Buffer	published 3/28/1998		Abandoned
PCT	WO98/03881	Graphics Processor with Staggered Memory Timing	published 8/28/1998		Abandoned
PCT	WO98/13888	Method and Apparatus for Producing a Visually Improved Image in a Computer System	published 8/28/1998		Abandoned
AU	8178134	Method and Apparatus for Producing a Visually Improved Image in a Computer System	published 8/28/1998		Abandoned
PCT	US98/18748	Computer System Having A Distributed Texture Memory Architecture	8/18/2000		Pending